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## THE RUSSELLS.

THE noble family of Russell, of which the Duke of Bedford is the head, originally belonged to Dorsetshire, on the southern coast of England. One of them, Sir Ralph Russell, knight, was Constable of Corfe Castle as early as 1221; which may be called a respectable antiquity. Passing over a few generations, we come to John Russell, who, at the beginning of the sixteenth century, resided a few miles from Bridport, where he and his descendants might have remained in the rank of private gentlemen, but for a remarkable chance circumstance; though it is evident that the chance would have been unavailing had there not been ability to take advantage of it. No doubt, 'There is a tide in the affairs of men, which taken at the flood leads on to fortune'; but what signifies the highest flood-tide in human affairs, if people have not mental culture and tact to make the best of the opportunity? How beautifully this is illustrated in the story of the Russells!

In 1506, Philip, Archduke of Austria, being on his passage from Flanders to Spain, encountered the fury of a sudden storm in the English Channel, and took refuge in Weymouth. There he landed, and was hospitably received by Sir Thomas Trenchard, a gentleman of rank in the neighbourhood. Apprising the court of Henry VII. of the circumstance, Sir Thomas invited his relation, Mr Russell, then recently returned from his travels, to visit the Archduke. The invitation being accepted, the Prince was fascinated by Mr Russell's intelligence and companionable qualities, and requested that he should accompany him to Windsor, whither the king had invited him to repair. On the journey, the Archduke became still more pleased with his 'learned discourse and generous deportment'; for as he was able to converse in French and German, there was no difficulty on account of language. So pleased was the Archduke, that he strongly recommended Mr Russell to the king. As a consequence, he was taken immediately into royal favour, and appointed one of the gentlemen of the privy-chamber. Sub-

sequently, he became a favourite of Henry VIII., and a companion of that monarch in his French wars. Now, on the high-road to fortune, he was appointed to several high and confidential offices. Finally, in 1539, he was created Baron Russell of Cheneyes, in the county of Bucks, which estate he afterwards acquired by marriage.

To make the good-luck of the first Lord Russell something beyond precedent, he lived at the outbreak of the Reformation in England, when monastic institutions were dissolved, and church lands, in the hands of Henry VIII., were given to lay adherents of the crown with what may be called reckless munificence. Lord Russell came in for an uncommonly large share in the general distribution. In 1540, when the great monasteries were dissolved, His Lordship obtained a grant to himself and his wife, and their heirs, of the site of the Abbey of Tavistock, and of extensive possessions belonging thereto. There was much more to come. After the accession of Edward VI., Lord Russell had a grant of the monastery of Woburn, and was created Earl of Bedford, 1550. In 1552, a patent was granted to John, Earl of Bedford, of Covent Garden, lying in the metropolitan parish of St Martin-in-the-Fields, with seven acres called Long Acre, of the yearly value of six pounds six shillings and eightpence; part of the possessions of the late Duke of Somerset. Covent Garden, or more properly Convent Garden, was originally the garden of the Abbey at Westminster. Reckoned as of very small value at the time, the lands in and about Covent Garden, and stretching northwards, now covered with streets and squares, realise a princely ground-rental.

Francis, fourth Earl of Bedford, who lived in the reign of Charles I., was noted for his ingenious scheme of draining an extensive tract of flat land, on the east coast of England, included in Lincolnshire and other counties, with an area of four hundred thousand acres. Liable to be covered by the sea, and always in the condition of a marsh, the land was of little value, unless it was drained. This work was undertaken by the Earl of Bedford, and carried out by him after incurring much

opposition, and encountering many serious difficulties. He expended a hundred thousand pounds on the work, on condition of receiving ninety-five thousand acres of the reclaimed land. His son William, fifth Earl, incurred a fresh outlay of three hundred thousand pounds to render the work complete; and ever since it has been known as the Bedford Level. With subsequent improvements, the land is a beautiful and fertile plain; being so much added to the available surface of England.

Francis died in 1641, and was succeeded by his eldest son, William, fifth Earl of Bedford, who had seven sons and three daughters, of whom the eldest surviving son was Lord William Russell, the distinguished patriot in the reign of Charles II. Born in 1639, and educated at Cambridge, Lord William in a marked degree inherited the elevated ideas of civil and religious liberty, for which the family has always been remarkable. In 1669, he was married to Lady Rachel Wriothesley, second daughter and eventual heiress of Thomas, Earl of Southampton, Lord High Treasurer, and widow of Francis, Lord Vaughan, the eldest son of Lord Carberry. As Lady Rachel Russell, she was destined to derive lustre from her high sense of duty as a wife and mother in the most trying circumstances.

To understand the interesting and pathetic episode now to ensue in the story of the Russells, we have to call to mind the deplorable misconduct of the last three sovereigns of the House of Stuart. It may be admitted that by having to contend with the gloomy puritanism that had sprung up, Charles I. lived at an unhappy period; but he took the worst possible way of dealing with his subjects. His self-willedness, his falsehoods, his insincerity, and his illegally despotic measures, provoked civil war, which led to the overthrow of the monarchy, and the setting up of the Commonwealth under Cromwell. Next came the reign of Charles II., who by his profligacy, baseness in becoming a stipendiary of Louis XIV., and his general misgovernment through court favourites, created the utmost dissatisfaction among his subjects. Towards the conclusion of his reign, there sprung up plots to get rid of him as well as of his brother, James, Duke of York. Of course, all such plots, however ineffectual, were treasonous, and punishable by law. In some instances, the plots were the mere inventions of a set of perjured wretches, who, for the sake of pay, did not mind falsely incriminating members of the party whose politics were adverse to the unconstitutional measures of the court.

Although perhaps aware of the danger he incurred, Lord William Russell unfortunately visited the house of a person named Shepherd, in which he heard some remarks as to the possibility of seizing the guards, but took no part in the conversation. Immediately, through the machinations of Shepherd and others, the rumour of a plot was carried to the court. Glad to have a man of mark to fasten on, the king and his brother caused Lord Russell to be seized and taken to the Tower. After being examined by the Privy Council, and sent back to the Tower, Lord Russell, says Bishop Burnet, 'looked upon himself as a dead man, and turned his thoughts wholly to another world. He read much in the Scriptures, particularly in the Psalms, and

read Baxter's dying thoughts. He was serene and calm as if he had been in no danger at all.' In answer to every interrogation, he denied all knowledge of any consultation tending to an insurrection. It was all in vain. On the 13th July 1683, he was placed at the bar of the Old Bailey, to take his trial for high-treason. As seems to be common in England, he had no indictment previously served upon him, and he pleaded not guilty before he knew what was the crime charged against him. Being provided with pen, ink, and paper, he asked if he might have somebody to write for him. He was told that he might have any of his servants; but on mentioning that his wife was in court and ready to assist him, the Lord Chief-Justice said: 'If my lady please to give herself the trouble.' Thereupon Lady Russell meekly sat down beside her husband, to aid him to the best of her ability. A wretch named Colonel Rumsey came forward as a witness for the crown, stating matters with no foundation in fact; and by his evidence, also that of Shepherd, and others equally disreputable, the jury brought in a verdict of guilty of high-treason. Next day he received sentence of death.

The assiduous labours of Lady Russell during the trial are spoken of as something remarkable; nor did she cease the most energetic efforts to move the king to mercy; without avail. When Lord Russell spoke of his wife, the tears would sometimes come into his eyes. Once, he said he wished she would give over her attempts for his preservation; but when he considered that it would be some mitigation of her sorrow afterwards, to reflect that she had left nothing undone, he acquiesced. He expressed great joy in her magnanimity of spirit, and said the parting with her was the severest pang he had to suffer. In the few days he had to live, he was attended by his friend Dr Burnet, and by Tillotson, Dean of Canterbury. On the night before his execution, after parting with his children, he asked Lady Russell to stay and sup with him, so that they might take their last earthly food together. At ten o'clock she left him. Next morning, 20th July 1683, he was beheaded in Lincoln's Inn Fields.

The judicial murder of Lord William Russell, and subsequently of Algernon Sidney, as well as some other patriots, served only to intensify the feelings of hatred entertained towards Charles II., and James, his brother and successor. When beset with difficulties, and ruin closing upon him, James, it is said, applied for advice and assistance to the Duke of Bedford, who sorrowfully replied that once he had a son who might have helped the king in his extremity. We almost doubt the truth of this tradition, for the Bedford family were in politics distinctly opposed to the king, who had been instrumental in bringing Lord William Russell to the block. The illegal, and it would almost seem mad proceedings of James II. lasted until the Revolution, when loaded with the execrations of England and Scotland, this the last of the Stuarts ignominiously fled from the country. In the present day, it is scarcely possible to picture the coarse tyrannies, and the distress and confusion they created throughout the whole of James's brief and inglorious reign of three years, 1685 to 1688. Little need be the wonder that after wasting their opportunities, the Stuarts were finally thrown off in disgust, and

unpitied, except by a few zealous adherents, sunk to merited extinction.

Shortly after their accession to the throne, William and Mary, in acknowledgment of the consummate virtue, sanctity of manners, and greatness of mind of Lord Russell, created his bereaved father Marquis of Tavistock and Duke of Bedford; while by an act of parliament the attainder of Lord Russell was reversed. On the death of the Duke in 1700, his honours were inherited by Wriothesley, his grandson, only son of Lord Russell the ancestor of the present Bedford family. The life of Rachel Lady Russell, after the death of her husband, was occupied and imbibited by that grief of which she has left so affecting a memorial in her Letters. This remarkable woman drew out life to the age of eighty-seven, dying as lately as 1723, and is universally quoted as having been a pattern to her sex.

Wriothesley, second Duke, was a man of no mark. He occupied himself chiefly in horticultural and agricultural pursuits. At his death in 1711, he was succeeded by his eldest surviving son, Wriothesley, as third Duke, who is described as being a reckless devotee to gambling and other disreputable pursuits. He died without issue in 1732, and was succeeded by his brother John, as fourth Duke. John was a person of superior ability. He took part in the political movements at the middle of the eighteenth century, and was noted for his integrity of character and amiable disposition. Vast sums were expended by him in laying out the grounds and plantations at Woburn Abbey, which was now almost rebuilt on a scale of great extent, and furnished with a collection of pictures, scarcely to be paralleled in England. In executing these improvements, his greatest merit, perhaps, consisted in the skilful manner in which he arranged the magnificent park and pleasure-grounds, extending twelve miles in circumference.

Duke John had a son, Francis, Marquis of Tavistock, who married Lady Elizabeth Keppel, daughter of William, second Earl of Albemarle, and had a sad fate. He was killed by a fall from his horse in 1767, an event that caused his widow to die of grief. He left a family of sons and daughters. The eldest son, Francis, succeeded as fifth Duke, on the death of his grandfather in 1771. This Duke Francis was one of the most popular English noblemen in the latter part of the eighteenth century, when the country was agitated by the convulsion in France. As a friend of Charles-James Fox, and President of the Whig Club, his speeches carried great weight in the House of Lords. Dying unmarried in 1802, his titles and estates passed to his brother John, as sixth Duke.

John, sixth Duke of Bedford, was more noted as an ardent agriculturist, and skilful improver of his estates, than as a politician. In London, he did much to increase the value of the family property. One of his works was the building of the present Covent Garden Market at an outlay of forty thousand pounds. He is understood to have spent a like sum on the church at Woburn. Dying in 1839, he was succeeded by his eldest son, Francis, as seventh Duke, who, like his father, preferred a country life to politics, and by his excellent management added largely to the heritable family revenue, which under him is said to have reached

the sum of three hundred thousand pounds per annum. He died in 1861, and was succeeded by his only son, William, the eighth Duke of Bedford.

John, sixth Duke of Bedford, had two younger sons. One of these, George-William, a major-general in the army, was the father of Francis-Charles, the present Duke, who succeeded his cousin in 1872, and also of Lord Arthur Russell and the diplomatist, Lord Odo Russell, both of whom have been authorised to take precedence as sons of a Duke. The other son was John, the eminent statesman, who was created Earl Russell, Viscount Amberley, in 1861, but is best remembered under his original title of Lord John Russell, for as such he long figured as a member of the House of Commons. We can run over only a few of the leading events in the career of this remarkable person.

Lord John Russell, the youngest son of the sixth Duke of Bedford, was born 18th August 1792. After being at one or two schools, he accompanied Lord and Lady Holland on a journey through Spain. In his 'Recollections and Suggestions,' he says, on returning from this excursion, 'I asked my father to allow me to go to the University of Cambridge. But he told me that in his opinion there was nothing to be learned at English universities, and procured for me admission to the house of Professor Playfair in Edinburgh. There I had my studies directed and my character developed by one of the best and the noblest, the most upright, the most benevolent, and the most liberal of all philosophers.' Again he travelled abroad, and being returned member for Tavistock, he entered parliament in 1813, while yet not twenty-one years of age. Soon he made himself known as an advocate of parliamentary reform, but without improving his reputation, except among a few followers, for the country was unprepared for the measures which he suggested. For a number of years he devoted a considerable part of his time to literature, one of his books being the 'Life of Lord William Russell,' a by no means brilliant performance, but which has gone through several editions. His other productions, including 'Don Carlos,' a drama, are now little heard of.

Lord John was apparently deficient in the saliency of fancy requisite for success in literary enterprise. His rôle was that of a politician set on working out certain ideas in the business of legislation. There were abuses to correct, and he put himself in the front rank as their corrector. Very much through his tenacity of purpose, the Test and Corporation Acts were repealed in 1828, and the Catholic Relief Bill was carried in 1829. His next great work, along with Earl Grey, was the Reform Bill, passed after lengthened agitation, 1832. The Corporation Reform Bill followed. In these times, he occupied various positions in the ministry, and was for several years Premier. For a time, he acted as Colonial Minister under Lord Palmerston, and more lately as Foreign Minister. In 1861, as above stated, he was raised to the peerage, after which, in 1865, he was again for a short time Prime Minister. His political career may then be said to have terminated. In his day, and in his own particular line of abuse-corrector, he did meritorious service; but it was generally admitted that in the comprehensiveness of mind

which has a regard for all interests and feelings, there was a marked deficiency.

Residing retiredly at Pembroke Lodge, Surrey, Earl Russell outlived his more eminent contemporaries. Personally, he was almost unknown to the younger generation. Yet, as a public man who had done great things in his day, he was ever spoken of with respect by all parties. Universal sympathy was felt for him on the decease of his son, Lord Amberley. After languishing for years in a poor state of health, Earl Russell died, to the regret of the nation, on the 28th May 1878, when he had nearly attained to the age of eighty-six. He was succeeded in the Earldom by his youthful grandson.

W. C.

## YOUNG LORD PENRITH.

## CHAPTER XXV.—THE JOWDERS.

HUGH ASHTON, at Treport, did not, even during the enforced inactivity of the steamer under his command, find the time hang heavily on his hands. First and foremost, there were the repairs of the *Western Maid* to demand his attention. Strictly speaking, it was no concern of the vessel's captain as to when the vessel, now crippled, would be ready for sea. Old Captain Peter Cleat, his predecessor in the command, would have chuckled in his sleeve at the convenient delays which enabled him to draw his pay while tranquilly smoking his pipe on shore. But Hugh was no mere hireling, and he hurried on the work of shipwrights and engine-fitters in a manner which, in one of Her Majesty's dockyards, would have been invaluable, so that there seemed every probability that the tug-boat would soon resume her career of useful activity.

One task, less congenial to Hugh's tastes than that of speeding the repairs of his vessel, was forced by circumstances upon the steamer's young commander, that, namely, of weeding his crew of the worst elements that it comprised. A drunken fireman was cashiered. Three seamen also received their dismissal, and the most notable of these was the late mutineer, Salem Jackson. Hugh was loath to be severe with this man, leniently considering that his bad conduct on the night of the shipwreck had been sufficiently punished by the knock-down blow he had received; but the mate was obdurate.

'Pass over that, and worse'll come of it,' said Long Michael resolutely. 'Must hev an example, for discipline's sake. If you don't report the blackguard, I must, Cap.; that's all.'

So Salem Jackson was reported to the Board, and by order of the Board, dismissed, and went scowling away over the gang-plank of the *Western Maid*.

At this time, also, it came to pass that Hugh, perhaps rashly, provoked the undying hostility of a powerful though irregular guild, that of the Jowders or fish-dealers—a very important factor in the simple problem of Cornish coast-life. It stirred the young man's free and generous spirit to see the ignoble vassalage in which so many bronzed sea-faring men—fine fellows who seemed to have every good quality but that of mother-wit—were kept by the salesmen, whose illegal combination regulated the market-price of fish. Had this been the Jowders' sole offence, it might have

been condoned. Unluckily these petty capitalists were in the habit of investing a portion of their capital in the pockets of unthrifty fishermen, heedfully secured by certain stringent documents on stamped paper, which gave the lender a lien on boats and nets, goods and gear, and made the debtor the slave, as a debtor always is, of perhaps as inexorable a variety of the genus creditor as Europe could supply. One branch of business was dexterously made to help the other. It is not easy to dispute the hard terms of a purchaser who, while fixing his own price for cod-fish and skate, and turbot and mackerel, never suffers you to forget that the last half-yearly interest at seventy per cent. is in arrear, and that replevin and seizure and foreclosure, and other ugly terms familiar to the law, are only held in reserve, like greyhounds straining in the leash.

Hugh had spoken his mind once and again, with what was very likely an imprudent frankness, concerning these Jowders, and what would probably have been said of them, and possibly done to them, among the more independent colonists whom he had known, or in other parts of our own coast. Why did not the fishermen make a stand, save a bit, help one another in the hour of need, and cease to be borrowers from, and therefore serfs to, the Jowders? Why did they not band together to send their fish direct to market, and so get rid of the middlemen who fattened on their unthrift and helplessness, and whom he likened to a set of Tregeagles?

Hugh's advice did not do much good. The brave, broad-shouldered, simple-hearted giants to whom he spoke took his well-meant words in very good part, but shook their heads as they puffed at their clay pipes, with a very hopeless air. They were not free fishers, except in name, doubly enthralled as they were by the chains of habit, not to be snapped in day, and by the traditional bondage to the bloodsuckers who lived on the fruits of their toil and danger. To anger the Jowders was a very terrible conception to those who knew that all home comforts and the future power of winning a crust for the little ones depended on the non-employment of that awful scrap of stamped paper locked up in some salesman's desk. But the comparison of the money-lending Jowders to the legendary Tregeagle, that unjust steward whose punishment it is to labour hopelessly and for ever with spade and pail among the sands of the sea-shore, seemed to them a better witticism than any that ever had been uttered at the *Mariner's Joy*, where wit was rare; and they repeated the joke, and told it to their wives, and it was buzzed about from door-step to door-step until—it was not very long first—it got to the Jowders' ears, and raised a corporate feeling of hate against Hugh Ashton.

Presently, an event occurred which brought matters to a crisis. One day a fisherman's wife, Patience Pennant by name, came weeping to Captain Trawl's house. Could the Captain help her, or the young Captain help her, for the love of God, in her sore need? And in truth the poor thing, with two young children clinging to her skirts, and four others left crying at home beside the fireless hearth, was in great distress. Her story was a short one, and the main facts of it patent to all. Jan Pennant, her husband, had gone through a series of misfortunes. First,

he had 'took ill ;' then, when able to go out to the deep-sea fishery, a squall had carried away mast and boom, and much tackle in the wreck of the spars ; and, last and worst, old Mr Polwhedle of Treport Upper Town, professed salesman and real usurer, regarding luckless Jan as a sponge no longer worth the squeezing, had swooped down upon the debtor's boat and nets, in satisfaction of ninety pounds, principal and interest, then due.

The fishermen, moved by the hardship of the case, had clubbed their resources and made up a purse of twenty pounds. But Jowder Polwhedle would not take the twenty pounds, or grant a respite. Shylock insisted on his bond. It was held essential to the system of terrorism on which the power of the Jowders was based, that a victim should be made now and then. And Jan Pennant had been selected as a very appropriate sacrifice to Mammon. This time, Patience Pennant was enabled to dry her tears. Worthy Captain Trawl, who was not of a saving turn, could indeed produce from the recesses of the tea-caddy which served him for a treasury but one five-pound note, crumpled and greasy, which he flattened down with his heavy hand before presenting it to the fisherman's weeping wife. But Hugh Ashton, who had his share of the salvage reward unspent in his possession, produced, to quote Patience Pennant's admiring words, 'seventy golden sovereigns,' wherewith to pay off old Polwhedle of Treport Upper Town. And Jan Pennant, who had been too shamefaced to beg personally for aid, came to render thanks for the loan, beginning in manly words, and then breaking down and sobbing like a big bearded baby before he got to the end of his speech. And it was all that Hugh could do to prevent the surf-booted fishermen, Jan's neighbours and comrades, from carrying the young Captain of the *Western Maid* in triumph on their shoulders into the town. But old Polwhedle the Jowder was stirred to royal wrath, and his brethren of the craft made common cause with him.

That very evening, as Hugh, in compliance with the pressing invitation of the good simple fellows whose hearts his kindness had won, was present as their guest in the public room of the *Mariner's Joy*, there was a hum and an uneasy stir among the company nearest to the door, and there came shambling into the room a little lean old man, wearing horn spectacles, and having a huge black pocket-book ostentatiously protruding from the breast-pocket of the loose brown coat he wore. He took off his hat and adjusted his black wig upon his wrinkled brows as he came in ; and as his small ratlike eyes surveyed the assembly, it was evident that the sight of him produced an effect similar to that of the appearance of a ferret in a rabbit-warren. All those big stalwart fellows in the red shirts and blue suits of Flushing cloth seemed scared at the arrival of this lean little old man.

Hugh was the only person present who did not know the new-comer by sight ; but he soon learned his name from one of the company, who asked timidly 'if Muster Polwhedle would sit down.'

But Mr Polwhedle the Jowder declined to take the chair that the deferential landlord came bustling to offer. He preferred to stand ; and so, lean-

ing against the door-post, he drew out his large black pocket-book and opened it, and rustled over the leaves, looking about him from time to time, and scanning the face of man after man with a malicious enjoyment of the hush that had fallen upon the company and of the terror which his aspect and that of the black pocket-book occasioned. Had he been a prefect of police, and they a band of continental conspirators, the honest fellows gathered in the *Mariner's Joy* could not have looked more cowed than they did.

In a few minutes another new-comer, manifestly a friend of Mr Polwhedle's, dropped in, and then another and another, till the whole of the Jowders in Treport and its vicinity, some six or seven strong, seemed to be collected, like carrion-crows about a carcass, in the public room of that sea-side hostelry. The Jowders were not all, it may well be supposed, little old men, like Mr Polwhedle their patriarch. One or two of them indeed might have been his twin brothers, save as regarded the black wig ; but others were coarse, burly, red-faced men, in the prime of life, yet still with an odd sort of family likeness about the hard mouth and the restless eyes that seemed to be heirlooms among them. In the presence of this awful muster of Jowders, the fishermen scarcely dared to draw their breath, and an ominous silence prevailed. The silence was broken by old Mr Polwhedle, who, pointing with a yellow and crooked forefinger at Hugh, as if devoting him to the powers of evil, croaked out : 'There he sits ! That's the man !' And there was an inarticulate chorus of suppressed hisses and snarls from the congregated Jowders.

'Do you mean me, Mr Polwhedle, if that is your name ? And if you do mean me, what do you want ?' demanded Hugh.

'That's the man,' went on Mr Polwhedle, taking no notice of Hugh's inquiry, 'that takes upon himself to advise them that be fools enough to hearken to him, to have nothing to do with us Jowders. That's the man that said, in Australia I should have been tossed in a blanket, long ago. And that's the man that put on us Jowders the nickname of Tregeagles !' Again the same chorus, a little louder and fiercer this time, from the sympathetic fraternity of Jowders. The fishermen, their eyes on the ground, their muscular hands grasping their extinguished pipes, looked as frightened as school-boys in presence of an angry head-master. 'That's the man,' pursued Mr Polwhedle, suddenly directing his crooked forefinger and his baleful gaze towards the unfortunate Jan Pennant, 'that borrows cash—or begs it—from a stranger, and an enemy to us Jowders, when he's sold up by his lawful creditor, is it ? Very well, Jan Pennant ! Then, when you get a new mast aboard that boat of yours, and a new boom, the best use you can make of 'em is to set every rag of sail, and be off out of this, to earn your bread where you can. You don't sell another creel of fish in Treport, or near Treport, from now to your dying day, Jan, my lad !'

Then there arose, mingling with and drowning the hoarse chorus of the triumphant Jowders, a chorus on the part of the sea-faring men there present. Not of indignation—not of anger. No, no ! Never before, perhaps, had the threats of a Jowder been so publicly spoken ; but conversation, as we know, between man and man is not libellous,

and the fishermen there had for the most part heard hints, if not menaces, as dire as that freshly uttered. All that the poor fellows, with their wives and little ones at home, dared to venture was a humble plea *ad misericordiam* on behalf of Jan their comrade. His sentence was one of banishment; and for a Cornishman to leave the church town, the sight of the old church tower, and quay, and pierhead, and gabled houses, is bitter indeed. Even Hugh, when he spoke, after a wondering, sorrowful glance to right and left at the bronzed and black-bearded men, so fearless of storm and sea, so meek in presence of the usurers who took the lion's share of their hard-won gains, spoke, since at last he found himself the only spokesman there, with a mildness that belied the tingling of his warm young blood.

'Mr Polwhedle,' he said, 'think it over! Be as angry as you please with me, but spare the innocent. Jan Pennant has done you no harm. You wouldn't, surely, forbid an Englishman, in his native place, to earn his honest bread!'

'Wouldn't I?' replied old Polwhedle, with a hideous cackling laugh. The other Jowders echoed the laugh in deeper tones, and then, in a body, the carrion-crows moved off; and the Treport fishermen were not long in following their example. There was no more talk, no more laughter among them; but silently, despondently, each man went home to tell his wife with bated breath that it was not good to vex the Jowders, and of Jan Pennant's doom.

#### CHAPTER XXVII.—A FRUITLESS SEARCH.

Hugh had plenty to do. There was trouble in the 'Rest,' as the old skipper called his dwelling, under the roof of which Hugh was a lodger. Old Captain Trawl had himself fallen ill. Sometimes the unsuspected seeds of disease lie for years and years latent in the constitution, like so many grains of Egyptian mummy-wheat waiting, perhaps from the date of the mythic foundation of Rome to the present year of grace, to sprout when planted and watered, and bear doleful harvest at last. And especially is this apt to be the case when men have spent their best years under such skies as those beneath which the old merchant captain had spent the best of his life, and where fever, and ague, and palsy are easy to catch and hard to heal.

At anyrate, old Captain Trawl was ill; and his delicate grandchild Rose would have been unequal to the task of nursing him but for Hugh's help. Hugh Ashton was, like all sailors, a good nurse in sickness, soft of tread and speech and touch, and gifted too with that quick sympathy that divines a sufferer's wants, and which is often believed to be a woman's especial prerogative. Strange it is, by the way, that the bravest men, like the tenderest of women, are the best and most thoughtful beside a couch of pain. No watcher of the night could be more unselfishly patient than Hugh Ashton; and it was wonderful how soothng was the effect that his presence produced on the old invalided seaman, who loved to prattle, when he awoke from snatches of feverish slumber, of the sea.

One other volunteer attendant—other than 'Nezer the faithful dwarf, whose large feet and clumsy hands and heavy tread unfitted him for service

in a sick-room—the captain had, though it was very seldom that Will Farleigh had time to spare. Will was pretty Rose Trawl's affianced husband, a light-haired, bright, slight young fellow, the sole support of a bedridden mother, and whom it had not been easy to induce old Captain Job, who had a traditional reverence for bone and brawn, to accept as a suitor for his granddaughter's hand. Will was a bird-hunter and bird-stuffer, an ornithologist he called himself laughingly, not very strong, but as lithe and active as a lizard when scaling a rock, and reputed the most daring of Cornish cragmen. There are countless birds and rare on those far-western shores—the red-legged chough, the puffin, the osprey, and ducks and gulls of species unknown in many other parts of Britain; and Will, who was a devourer of books, knew more of their ways, and was defter in stuffing and preserving the specimens that fell in his way, than his illiterate competitors.

Will, like most of those who knew him, had been drawn towards Hugh Ashton, as such natures as those of the young Captain of the *Western Maid* do attract generous spirits. To Hugh he confided the hopes and fears of a life sufficiently adventurous. 'You see, Captain Ashton,' he would say, 'I get my bread by risking my neck. Mine's a kittle trade, as a North-country stuffer I once worked with—killed, I heard, poor fellow, by a fall from the Antrim cliffs, over in Ireland—used to say. Now, when first I began as a boy, I took a foolish pride in playing pranks, to make folks stare; but when I got more sense, I took the rope with me in awkward places, for mother's sake more than mine, since, if my foot slipped, there would be nothing for the poor old soul but the Union. And now, on account of Rose, I never throw a chance away when I am over the cliff.'

To Will Farleigh, whose professional wanderings brought him into contact with people of all grades, Hugh mentioned his desire to be informed as to the present whereabouts of Ghost Nan. 'Ghost Nan—Gipsy Nan,' answered Will, with a laugh. 'Why, she's here, unless indeed she goes on the principle of the old saying, "Here to-day, gone to-morrow!" Anyhow, I saw her, Wednesday evening last, fit, like a bat in the twilight, across the entrance to Holloway. Ten to one she is at Giles Treloar's.'

Hugh proceeded to explain to his new friend that it was no easy matter, according to his experience, to pass Mr Treloar's inhospitable portals. He had been twice at the door of the tramps' lodging-house since the memorable day on which the pot-valiant proprietor of the establishment had refused admission not merely to himself but to the superintendent of the Treport police, and so far from gleaned any intelligence as to Ghost Nan, had not even been able to obtain the dubious felicity of an interview with the redoubtable Giles himself.

'Whom did you see?' asked Will. 'A woman, wasn't it, with a baby in her arms, and a black eye, and smelling of gin and peppermint?'

Hugh admitted the accuracy of this unflattering portrait.

'That's Mrs Treloar—Mercy Judkin that was,' went on the young bird-stuffer. 'She was the daughter of a respectable tradesman, up town, and married this scamp Giles; and all her family

turned their backs on her when she came back with him from London and set up this lodging-house. 'It's out of pity for her the magistrates don't withdraw the beer license; and though she has much to put up with, poor creature, she does her best to go on respectably, and somehow keeps the business, such as it is, together. As for Treloar, he does nothing but drink and bluster, except when he has got the horrors on him; but, after all, he's master of the house; and so, if we want to find out about Ghost Nan, we must do it by stratagem.'

Young Will went on to say that he, dealing not infrequently for scarce birds or eggs with the moor-ranging vagrants who frequented Mr Treloar's squalid house of entertainment, was in a manner free of it. What he proposed was that Hugh should keep out of sight while he entered the place on some plausible pretext of business, and did his best, without exciting suspicion among a most suspicious class of persons, to ascertain whether Ghost or Gipsy Nan were really harboured on the premises.

Hugh's heart beat high as he walked beside the bird-hunter through the narrow and roughly paved streets of the quaint old town; but, at the corner of Holloway, Will Farleigh suggested that he should halt and await his return.

'One glimpse of you, Captain Ashton,' he said good-humouredly, 'would spoil sport. Me they don't mind; but you look so like a gentleman that, if they lost money by it—and they'd do pretty nearly anything for money—they couldn't help telling you a pack of lies. Mumps and cadgers are queer—very queer!' And with this axiom of practical morality, he went his way; and after a delay which seemed to Hugh interminable, came back, with a shade of disappointment over his bright boyish face. 'Bird flown,' he said, shaking his head; 'and some trouble I had too to find out that much. One thing I did learn—she went off this very morning New-Forest-way.'

'New-Forest-way—indeed!' answered Hugh thoughtfully.

'It's a great place for gipsies, I have heard,' returned the bird-stuffer, more occupied with his own skill in eliciting the information than with the intrinsic value of the information itself. 'I heard it from an old chap that makes a living by sham fits—epilepsy, you know—and travels all England to do it. "What do you want with Ghost Nan, young shaver?" says he. But I said she'd got a brace of kittiwakes to sell, that some gipsy boys had knocked down on the cliff with stones, I was told. And he believed it, and said with a chuckle: "You may go for your kittiwakes to the New Forest then, my boy, for she's off thereward since morning." And then Treloar came in, very boozy and quarrelsome, and I was glad to get out of the kitchen.'

As Hugh returned home, baffled for the second time by the whimsically sudden disappearance of this wild woman, who held, he could scarcely doubt, a clue to the mystery which he had made it the business of his life to fathom, he met Jan Pennant.

'I've come, Cap., to say good-bye, and may God bless ye for your kindness!' said the fisherman.

'You are not really going on account of the man's threats?' asked Hugh.

'Yes, I am, Cap'en. I know the Jowders, begging your pardon, better than you. Their bark's bad, but their bite's worse. We should come upon the parish here. But the wife and children are aboard, and I sail with the tide.'

'Where to, Jan?' asked Hugh.

'To Falmouth,' answered the fisherman. 'Tis my wife's native place, and I'm known there, and can live, I hope; though 'tis hard to be hunted out of dear old Treport. But them seventy pounds of yours, Cap.—trust me, if I work my fingers to the bone, I'll pay them back.'

'No hurry. Good-luck to you, Jan!' answered Hugh; and they parted.

#### A GLIMPSE OF ST HELENA.

AROUND the ocean-girt island of St Helena has always clung a certain amount of historical interest, notably that in connection with Napoleon Bonaparte. Comparatively few however, save the writers of a guide-book or a history of the place, know much about the island as it at present exists; their knowledge in all likelihood being derived from the brief descriptions afforded by travellers, whose acquaintance may have been limited to a transient glimpse of barren and precipitous rocks, from a passing vessel. Discovered by the commodore of a Portuguese fleet returning from India in 1501, on the anniversary of Saint Helena, mother of the Emperor Constantine, this sea-girt spot was successively colonised by the Portuguese and the Dutch. It finally fell into the hands of the East India Company, to whom it was confirmed by two charters in the reign of Charles II. In the year 1834 it was transferred to the crown.

Though at first sight St Helena may be disappointing those who tarry for a while are invariably enthusiastic in the remembrance of its balmy atmosphere, tropical verdure, and delicious flowers and fruit. Lonely as is this speck of an island, there is yet a fair amount of life and variety to ameliorate the solitude. *Ennui* is kept at bay by men-of-war and other ships which put into the island, occasioning balls, extempore dances, lunches, and picnics by sea and shore. Its glory as a garrison fort has not yet entirely departed, as is certified by the military element which prevails.

And now let us take a peep at the island and offer a few words of description. Leaving our ship at anchor in the safe little crescent-shaped harbour, we are rowed in towards the shore. As we approach through the waters, we have good opportunity to note the rocky cliffs towering upwards like frowning giants anxious to guard some treasure in their keeping. If it happen to be the season when the huge 'rollers,' as they are termed, prevail, we may shudder in fascination at these majestic waves gathering force, and bearing onwards dark and loud, at no great distance from our path, until they break in white wrath on the pebbly beach. To our left is Rupert's Hill, crowned by a battery, and other lofty crags, bare of vegetation. To the right, under Ladder Hill, lie the West Rocks, a level range, intersected with pools of sea-water, mingled with pebbles, sand, shells, and common green weed. Here are two natural bathing-places, one serene and calm, the other a miniature maelstrom.

We pursue our course *vid* the landing-place. Our boats row cautiously through the surf to the steps on our left, and we are on *terra firma*. While the cranes are drawing up luggage and various goods, we walk from the quay along a somewhat narrow road under the eastern hill-side, dusty with reminiscences of coal, where there is some stir and activity, and where a few Lascars are loitering about, or possibly at work. The way widens as we proceed, until we come to a drawbridge, and our steps awaken a hollow echo over the dry moat that separates the glacis from the parallel line of fortification; the inside wall supports the embankment of the principal raised out-work. Close to this wall are ordinance magazines, formerly well stocked with needful ammunition, and various public stores and offices.

We are impelled to glance back at the mighty billows dashing upon the glittering beach, ere we continue our route along the lines, where we hail the sight of trees. We pause about midway at the Gate, an arched avenue of stone, and the legitimate entrance to the town, whose central doors are closed at sunset, and always guarded by sentries. Thence we pass under the Terrace, or higher range of fortification, distinguished by its parapets, flag-staffs, and cannon; and terminated at each extremity by a battery, beneath Rupert's and Ladder Hill. Upon this abuts the Castle or town government house, with its private entrance and inclosures of commissariat and other stores. We do not now ascend the flight of red sandstone steps, much worn by tread of feet, that lead to the Terrace; but having emerged from the sombre precincts of the gateway into the light of the Square or lower Parade, we observe to our right one of the few hotels of the place, the Custom-house, and the little church of St James. Beneath the Terrace, in this vicinity, there is the lock-up. To our left, are the open gates and courtyard of the Castle. Contiguous we have a row of buildings occupied by the Government Printing Press, the Post-office, Session-house, and the chief public departments. Next appear the iron gates of the Government Garden, which in the good old times of the East India Company was filled with specimens of horticulture from all quarters of the globe. Looking out upon a quiet part of the garden is the Public Library. Here is situated the Town-hall, with cool veranda, where fancy bazaars, concerts, lectures were all wont to be held. The Sisters' Walk, a semi-romantic road or path extending behind and above the gardens, was designed by Colonel Patton, the governor in 1807, as a secluded promenade for his two daughters. The walk has long been open to gentle and simple alike, and here we find rustic benches close to a murmuring streamlet, overshadowed by the gamboge, the pepel, and that freak of nature the banyan. It ends in a hexagonal summer-house directly over the battery where the Terrace begins, and embraces a wide prospect of the wharf, the glacis, the bay, and the western rocks opposite, with a portion of the rugged hill of which those rocks form the base.

Let us quit the town however, and wander inland. The celebrated tomb of Napoleon has often been described, as well as Longwood House; also that first and chosen residence of the fallen conqueror, the Briars, among whose geraniums Thackeray had a glimpse of Bonaparte. The

author of *Vanity Fair* on his homeward way from India at the time, was carried past the house by his black 'bearer.'

The most remarkable elevation in the island is that called Diana's Peak, situated in the central part of the island, two thousand seven hundred feet above the level of the sea; with Acteon in the vicinity. It is wooded and verdant to the summit. Here are found the indigenous tree-fern *Dicksonia arborescens*, extending some fifteen or twenty feet in height; the black cabbage-tree, whose gnarled and crooked branches produce vegetation at the top, chiefly leaves resembling the laurel, and daisy-like flowers. In the vicinity of Longwood is the Barn, a square-looking eminence of two thousand and odd feet, hard to climb; and unlike Diana, covered with coarse grass and stunted shrubs. Fossil sea-shells lie strewn on the highest point! One of the curiosities of the island is a tract called The Churchyard, a dreary plain of dry sandy soil, scattered over with boulders, many of considerable size, smooth, and some resembling tombstones in shape. One among them, about six feet in height, is most singular, being hollowed out at the top like a natural font, and containing in the driest season about a quart of pure water, apparently absorbed up from the ground. From this you may quench your thirst in passing; and returning thither an hour after, find another tempting draught awaiting you. There is no sign of verdure in this silent weird place, that might have been aptly called Ghouls' Acre. From this place you may proceed towards the ponds on the sea-coast where the country-people go a-fishing; in passing may be noted the print of a large Foot, firmly stamped into the hard sandy surface, which they say can only belong to the Evil One.

On the way to the ponds there is a yawning fissure in the cliff-side presided over by Lot's Wife, called the Dungeon; stones thrown into its depths were said to go on echoing for ever, like the haunting memory of an evil deed. Of the boulders in the island, one of the most remarkable is the Bellstone, in the eastern district; it is of enormous size, and consists of a detached rugged block, surmounted horizontally by a great flat stone of oblong shape, which when struck sends forth a sound like the clear ringing of a bell, and is heard miles away.

The titles of some of the localities are singular enough, such as—Half Moon Battery, Two Gun Saddle, Man and Horse Ridge, Stitches Ridge, Breakneck Valley, and Mosquito Cottage. Pleasantly suggestive are such names as Bliss Cottage, Myrtle Grove, Rose Bower, Sunny Side, and Mount Pleasant, overlooking Fairy Land.

At one time Chinese labour was extensively employed for domestic and field purposes in the island. The burying-ground still exists, where might be seen little notes covered with hieroglyphics, and attached to the mounds by sticks. Several joss-houses also existed for their convenience. The common and sweet potato and the yam are grown in quantities; the last named is relished by the poorer class as a vegetable in fried slices. Pumpkins, and Indian corn roasted to a crisp brown, are also eaten. Fish and rice are the staple articles of consumption amongst the poor all the year round. Of shell-fish there are the stump, a cross between lobster and crab, of a dull red colour; and the longlegs, a large-bodied lobster,

dark blue, with red spots. Turtle are frequently found; one caught in the same year that Longwood new house was prepared for the Emperor, weighed about eight hundred pounds, the shell afterwards forming the chief portion of a soldier's hut. Of sea-fowl, that commonly known as the Tropic Bird (*Phaeton aethereus*) haunts these shores. It is conspicuous by its immense size when on the wing, and by its glistening white plumage. In the days of the East India Company, the egg of another sea-bird, which was about the size of a small hen's-egg, was esteemed a great delicacy, and considered by them as one of their peculiar perquisites. Certain days of the week were specified when the public were allowed to collect them. The man who caught a 'sea-cow' ran a risk of being fined five pounds if he did not offer to share his booty with the Company, or 'the oyle of the same.'

Among the live-stock, poultry and fowls flourish, in wild or domesticated state; they are fed chiefly on 'paddy' or rice unthreshed from the husk. Of game there is no lack, although the species is limited; there being a regular season and license. The wild rabbit burrows in the neighbourhood of the luxuriant furze; partridges and pheasants abound. The canary, though not of so pure a plumage as the English and Belgian varieties, is a beautiful songster. But the *rara avis* of St Helena is the cardinal or red-bird, robed in vivid scarlet during the summer months, but when moulting, of a greenish gray tint. It is difficult of capture, swift, and very mischievous, destroying buds and blossoms of fruit-trees. It has no song. The only bird considered to be entirely indigenous is the 'wire-bird,' a sort of plover, not unlike the snipe in appearance and size, and receiving its local appellation from its habit of frequenting the long 'wire-grass' of the more sterile regions. The Java sparrow and a few 'foreigners' are found at St Helena; but no English species.

A few English fruits are to be met with sometimes, such as the currant, strawberry, and gooseberry; but these are rare. All the more common vegetables, such as peas, beans, broccoli, cabbages of every sort, endive, lettuce, cucumber, &c. flourish well in this fertile soil. Pears are abundant, also the English apple. Of really tropical fruits there are the mango, the guava, the loquat, the chirimoya—a custard-apple of delightful flavour from Jamaica; the banana, the plantain, and the peach. The king of peaches is a large golden-yellow globe, resembling the nectarine, but more juicy and sweet. The grape, melon, pine-apple, apricot, fig, mulberry, chestnut, the filbert, and cocoa-nut, also flourish. The purple and the white granadilla is another fruit of no distinctive flavour. The sugar-cane grows to but a small extent, and is never utilised. The date, tamarind, pomegranate, Indian fig, and prickly-pear are also to be found amongst the products of the island.

The indigenous wild-rosemary (*Phyllica rosmarinifolia*) is a tree of graceful form, with small leaves of pale green. It is peculiar to rocky and barren situations, and might be termed the St Helena upas, for nothing will flourish in its shade. The ebony-wood once grew luxuriantly, not alone on Diana's Peak, but in many spots. The red-wood (*Dombeya erythroxylon*), which has also become

very rare, grew to a height of thirty feet, bearing large pendent blossoms of bell shape, white and red. There is another *Dombeya* spoken of in an ancient record; and but that these plants were classified far too long ago, we should be inclined to believe that some lover of Dickens had been botanising among the indigenous vegetation of this favourable spot in the Atlantic. The seed of the elephant-grass is styled locally 'Job's tears.' Of these—solid enough for the purpose—the natives manufacture necklaces, baskets, and other ornaments. The American aloe furnishes material for many a tasteful nick-nack to the skilful manipulator of its fibre. Its abundant blossoms here offer further disproof of the Old-world notion that the aloe blossomed but once in a century. Several of the different species of aloe and cactus, &c. which are preserved in the conservatories at Kew, are found at St Helena. The coffee-plant attains to a remarkable height, and is very plentiful, the berry, which is excellent, being exported. The oak flourishes in great beauty, from acorns first planted about 1750; and there are many familiar trees, English and European; the laurel and holly, the willow, cypress, cork, &c. Such is the geniality of the climate, that the palm, the Norwegian fir, the oak, and Norfolk Island pine stand side by side. The silver-tree, which adorns Table Mountain at the Cape of Good Hope, also grows in this Fortunate Isle, the narrow silvery leaves of its involucrum making a beautiful shield for the innumerable stamens and cone-like centre of the blossom. Nor must we forget the graceful and softly stirring bamboo, that might be the home of some tropical Dryad; and the tall *datura* expanding in perfection its large, white, bell-shaped flowers, closed and shrunken during the day, like mere clinging rags; hence perhaps its local designation in prose—the Petticoat plant. But soft: stay till Night comes, and with her magic touch, we shall behold the drooping blossom transformed into the *Belle de Nuit*! A lovely sight these numberless bells, bending with stately grace in the moon's light, after the 'blood-red' sun has sought his rest.

The Virginia and sweet Madagascar creeper ornament garden bowers and arbours. The passion-flower appears in four or five varieties, as well as all garden-flowers—fuchsia, jasmine, mignonette, pansy, heliotrope, camellia, and roses of many kinds. A red salvia colloquially called here 'splendid sage' is far handsomer than the common English salvia. In private grounds where especial care is bestowed, as Plantation House, the Governor's residence and others, the rose, verbena, carnation, pelargonium, and different exotics are brought to some perfection. Geraniums of all sorts are plentiful; the common scarlet growing wild in whole hedges, as well as the nutmeg or strong-scented leaf. The arum-lily is accounted, for some reason, the emblematical flower or badge of St Helena, and is a conspicuous element of church decoration upon festal occasions.

The principal sources of revenue in St Helena are licenses; water-rates; taxes upon carriages, horses, and dogs; wharfage and custom duties; a moderate tonnage-due; &c. There appears to be no police-rate. There are various time-honoured institutions: charity and benefit funds; poor and industrial societies; several schools, besides those

under government; a Benevolent, and an old-established Social Society, of which the Bishop is patron.

In 1847, the island of St Helena was created an episcopal diocese, incorporated with Cape Colony, the first Bishop being Dr Gray. Later, it was altered to a small independent see, of which the lord-spiritual not improbably enjoys a quasi-sinecure. There is no dearth of churches and chapels. The poor are well cared for, both islanders and negroes. Many of the latter are domestic servants (proving generally a faithful class of servitors), or were so until recent years, when a large number were despatched to Lagos and other settlements. The affections of the African are strong and tenacious. At the period of the emancipation of slaves in this island, many craved to remain with their quondam owners upon unremunerated service, rather than be turned adrift to shift for themselves under conditions of 'freedom,' in exchange for a home ruled by the law of kindness. St Helena was virtually one of the earliest colonies to liberate its slaves; a movement which took place nearly twenty years prior to the regular abolition by law.

To take a stroll in the early morning along paths bordered with wild sweet roses, glistening with dew, and shedding their perfection of odour unheeded, is to comprehend something of the *dolce far niente*; fragrance, light, colour, everywhere; banks upon banks of wild fuchsia in ruddy bloom; great bushes of heliotrope side by side with sweet-brier and myrtle; lofty vigorous-limbed trees of the red and the white camellia; these in garden-walks or alleys, but still growing in luxuriance in the open air. To a branch of a camellia-tree in the grounds of a country-seat—of which Liberty Hall would surely have been no misnomer—might be seen a child's swing fixed. Fancy learning the poetry of motion thus! Camellia petals showering around you, mingled with those of the lesser-magnolia, and diffusing through the atmosphere a perfume more delicate than that of its powerful elder sister the *grandiflora*. Imagine again, the sight of two or three juveniles, comfortably enconced, unchidden and unwatched, in the branches of peach-trees, feasting to their heart's content!

But here we must close our glimpse of this peaceful insular spot, which is becoming better known than formerly, from the circumstance that it lies on the route of Messrs Donald Currie and Company's fleet of splendid steamers to and from the Cape.

#### MR HIPSEY.

THERE exists a numerous vagabond class of persons—well informed, clever, ready for anything, but unsteady. They have no command over their abominable appetites, and seem as if set on never doing any good, no matter what is done for them. There is another class of the vagabond order, who are only unsettled from a degree of inherent eccentricity. One of these is Mr Hipsey, whom we happen to know something about. He has been a wanderer all his life. We meet him slouching about the Strand and the purlieus of Clement's Inn, always in the same shabby clothes, with his hands stuck in his pockets, apparently doing nothing whatever

day after day. And yet he always has a little money about him, and never appears to be what is usually termed 'hard up.' Only a few persons know how he actually lives; but it appears that while sauntering about the streets with apparently no fixed object, his brains are busy at work devising some method of keeping the wolf from the door. In early life he has been a school usher, and his education is very tolerable. He writes a good hand, and frequently sits up all night doing jobs for the law-writers. Then he has not forgotten his classical studies, still retaining enough knowledge of Greek and Latin to suit his purpose, and is besides a very fair botanist. At the ripe age of fifty-four he has already tried his hand at every 'light' trade you can mention, including of course the three learned professions of the church, law, and medicine; the first as an itinerant preacher, the second as a law-writer's clerk, and the third as a purveyor of herbs and pills on a truck. People will naturally wonder why with such versatility of genius the man has not long ago made a fortune, for he does not drink, or at anyrate it takes so much to affect him that nobody can say they ever saw him the worse for liquor. But the one failing to which may be attributed his non-success in life is negligence. If you give him a job in your counting-house, he will go on admirably with his work until you are busy and cannot very well spare him; when he will suddenly desert his post without warning. Having no wife to scold and drive him, he treats all your animadversions with the utmost complacency. Why should he trouble if your accounts have become confused? Something else will be sure to offer to him shortly, and that is quite enough to satisfy him.

Like his more aristocratic brethren the loungers of Pall Mall, he must have his summer outing—or as he terms it, 'a run at grass' every year. As his means do not admit of railway charges, he puts into his pocket a pipe and tobacco, matches, a pencil and plenty of paper, and a knife. Thus equipped he sallies forth about the third week in June, and in a couple of days or so gets well up into Hampshire. As for money, why, he had eighteenpence in his pocket when he started, but now has nearly ten shillings. And this is how he has become so rich. Whenever he nears a village, he inquires the name of the parish clergyman, and scribbling a short message in Latin, sends it in by the servant-maid. This is the 'open sesame' to the clergyman's heart and purse-strings, who usually sends him out a shilling or two, not unfrequently coming to the door and asking him questions. But Mr Hipsey is always equal to the occasion. He is of course an unfortunate scholar driven to do any menial work in London when he can get it; but the town is empty, and there is nothing to be had. If the clergyman thinks he may perhaps be an impostor, and asks him to read a little Horace, he can do that; and as for the police trapping him, why he never found a fellow-reader of the classics yet who would even hint that he was committing an offence under the Vagrant Act. Besides which, he always reserves a point of law in his favour, for he has carefully worded his note to imply a loan; and if by any possibility a mishap should occur, he will be certain to battle out his Latinity before the magistrate.

Going a few miles farther with Mr Hipsey, we learn from him the botanical names and medicinal virtues of many wild plants; and coming upon a bed of water-cress, he fills a tolerably large canvas bag full; and as it is now noon and the sun is hot, he thinks he will have a plunge into the river to refresh himself. Soap he does not need, for there is plenty of yellow clay about, and that answers as well; neither does he trouble about a towel, but simply sits still until he is dry. After this he invites us to lunch, which consists of something better than bread-and-cheese, washed down with something out of a tin bottle rather stronger than beer. After a pipe and a snooze upon the grass, he starts off to sell his water-cresses at the houses of country gentlemen by the road, who are usually, he informs us, lamentably ignorant of the classics. He knows nearly always the character of the master of the house by the sort of servant who opens the door. If a neat-handed Phyllis or a six-foot-high footman comes, he is pretty certain of custom, or at all events of civil answer. But he detests those places where a page in buttons appears, for he says he invariably finds their masters 'stuck up' and poor, and the boys rude as Boreas. Occasionally he is offered by his customers something to eat and drink; but he is never allowed to help himself; and even farmers, at all events in the southern counties, are becoming horribly stingy to what they were when he was a boy.

Towards five o'clock he collects some sticks and lights a small fire between a couple of stones, on which he places a tin bottle full of water, with a few pinches of tea at the bottom; and when it has boiled he produces a child's mug from his pocket, and bread and butter, purchased with his water-cress money. The evening is spent rummaging over some large woods and fields; for on the morrow he expects to make a 'haul,' as he terms it; and as the sun sets, goes in quest of a bed at some rustic public-house. If he fails to procure one, either because they cannot accommodate him, or else will not do so at his price—namely sixpence, he makes himself comfortable in the hay-fields. With the first streak of light in the east, he is astir, and lighting his pipe, bids us accompany him, for he must do his work speedily before the gamekeepers are up. Then with knife in hand he proceeds to cut and tie into large bundles the *Atropa belladonna*, growing plentifully around, and this with our assistance he conveys to a place of concealment; for it is observed that herb has a market value of about eight pounds per ton in its green state, and if he were caught cutting it, he might be stopped. Long before the gamekeepers are about, he has culled all the belladonna worth having, and then prepares his breakfast. While having this meal, he avers to us that he is thoroughly enjoying himself, and that the excitement of gathering wild plants is every way as pleasurable to him as fox-hunting is to others. The next thing is to borrow a rickety old truck, or hire an old man with a donkey-cart to take his herbaceous spoil to the nearest railway station, and thence to London; whence in a day or two he will have a post-office order for the quantity he has sent.

It must not be supposed however, that he is always fortunate either in finding saleable herbs or in gathering them when found; for the country-

people in some parts will rather allow the plants to rot than permit him to take them; and he not infrequently has to pay hush-money to gamekeepers and others who have come to be aware that herb-gathering is at times rather lucrative. Usually he goes to his old frequented haunts, sometimes finding however, on arrival that another has been there a day or two previously, and carried away everything. In such cases, he reminds his clerical friends pathetically that he is unfortunate as a herb-gatherer, and reduces his luxuries of eating and drinking. In about a month, he will have done all he can; and with ten or twelve pounds in pocket, will return to town to take a short season of rest before the hop-picking season commences in Kent.

Laden with a mysterious bundle of greenery despoiled from the woods and hedgerows of sunny Hants, he reaches his room in Great Wild Street, Drury Lane, and immediately begins to complain how badly the streets smell, whereupon he proceeds to throw out the stuffing of his palliasse, which he replaces with a quantity of fresh-dried ferns. His bedstead he has manufactured himself out of a few planks and a couple of tea-chests, and the rest of his household surroundings are of an equally primitive description. Round the wall he hangs some of his idolised roots and plants to dry, and proceeds to wash his shirt; for he has but a very small stock of linen, and sends nothing out to the laundress. He is too his own tailor, and as far as possible his own cobbler, buying whatever he is compelled to buy second-hand, and making it last as long as possible. With regard to cookery, he is great at stews, and will manufacture you a pie out of liver and bacon seasoned with some wild marjoram, which will go down very well even if you are not hungry. Then if reduced to rather a low ebb, he will make a very palatable mess out of a pennyworth of mussels, or half a cow's heel and a few onions.

With all such qualities to recommend him, and being able, as he usually is, to pay his way, it is not surprising that some of the fair sex occasionally pay him attentions with a view to matrimony; but he turns a deaf ear to all their hints, feeling quite certain that he should either forget the appointed day, or else flatly refuse to take the bride-elect to wife when interrogated by the clergyman. By the time the hop-picking season has commenced, he has usually reached the bottom of his purse, and has again to tramp it down into Kent. As far as earning money is concerned our Bohemian friend does not find hop-picking of much use, as he has no family to assist him; and children with their nimble fingers can earn as much as he can. But what with a little work by day, and playing a cracked fiddle in the public-houses at night, he manages to make a pretty fair thing of it; and upon returning home will be sure to call at some of the wharfs where he is known, and beg as much stray wood as he can carry to serve him for firing.

Like a skilful general, it will be seen that he has a great many strategical points to fall back upon. In fact our vagabond can turn his hand to so many things that he is rarely at fault for resources, and as it is said of all of us that we each have a mission to fulfil in the world which nobody else can accomplish, we must not consider that the

life led by Mr Hipsey is devoid of good points. Men like himself, of versatile powers, fill, undoubtedly, a gap in the social system, and give us some insight into the life of a literal vagabond.

### A STITCH IN TIME.

IN TWO CHAPTERS.—CHAPTER II.

HAD Mr Burton's money been in jeopardy but a very few years later than the real date, the electric telegraph would have laughed to scorn all his efforts; but he was just before that marvel—in its communication with Australia at anyrate, and he was glad to think he had yet a chance. Swift as may be the progress of a clipper steamer, yet even by the swiftest, the voyage to Australia is a long and monotonous passage, and to a man with such anxiety in his mind as was the lot of Mr Burton, it seems endless.

Their passage was as prosperous and uneventful as a passage could be; yet even then, one or two trifling incidents occurred to disturb him and to fill him with the gloomiest forebodings of failure. One evening—they were far on their way then, and the greater part of the waste of water which they had to traverse lay behind them—Mr Burton was lounging on a bench at the stern of the vessel, watching the setting sun, which was spreading a sheet of gold over the calm sea, and thoughtfully smoking a cigar, when he heard a seaman, who was engaged in some duty near him, remark to his comrade: 'I say, Bill, do you see that line, right under the sun there?'

Bill nodded his assent.

'Well,' continued the other, 'that must be the smoke of a steamer. I shouldn't wonder if it's the mail.'

In an instant Burton was on his feet, the cigar was flung into the sea, and he was gazing, with his hand shading his eyes, in the direction of the setting sun. He could see nothing. The practised eyes of the seamen were probably able to trace the line of which they spoke; but the passenger could see nothing. He did not care about speaking to the men on the subject, lest he should shew too much anxiety; but he paced the deck until the last of the passengers had retired to his cabin and the moon was full in the sky, yet nothing had he been able to discover; nor did the fresh watch who came upon deck refer to any following vessel, so he hoped that at anyrate the strange ship—if one there really had been—was not gaining on them.

It is certainly not necessary to dwell on the closeness with which Mr Burton followed their progress on the chart, or the constancy with which he was present at the heaving of the log; all this goes without telling, as the French say. But another result of his intense anxiety to reach Australia was that he became very nervous, and the least thing, such as the slightest surmise uttered in his hearing, was enough to startle him; and one morning he could not touch his breakfast because he heard the officer who had charge of the watch during the night, say to the officer who relieved him: 'I thought I saw the smoke of a steamer about two bells. She was to the nor'ard, and going faster than ourselves—at least so I thought at first; but I could make nothing out for certain, and there was no sail in sight at sunrise.'

Yet the lieutenant—they are all lieutenants and captains to landsmen—might have been right in his first conjecture! There might have been a steamer 'to the nor'ard,' going faster than themselves, and this might have been the dreaded mail!

These examples will give a fair idea of the tension of Mr Burton's nerves; and as they drew nearer their port, as a matter of course his anxiety increased. But when they steamed gallantly into the noble bay on which the town, or rather its port, stands, and came nearer and nearer to the quay, and saw no long black hull with double funnel lying there, a great weight seemed taken from Burton's breast, and he felt that his long and exciting struggle had at last won for him a reward.

It was late in the afternoon when the screw of the *Cerberus* at last ceased to churn and froth the water, and her great engines were fairly stopped.

'You will spend the night with us?' said the skipper; 'you will be too late for any business in Pelham to-night.'

Pelham, as the reader will probably have divined without any explanation, was the chief town of the province, the town where the head office of the Gulf Bank was located. They said 'located' there, and used indeed a good many Yankee phrases. Bangbang was the name—a native name—of the port at which the *Cerberus* was now anchored, and was connected with the provincial capital by a short line of railway.

Mr Burton returned his best thanks to the captain for his invitation; but his nerve and energy had now returned, and he resolved not to lose one minute in his enterprise. So he declined the invitation; and leaving directions for his luggage to be sent to a certain hotel—he knew Pelham well enough, having lived there once—he quitted the ship, after the heartiest possible farewell from captain, officers, engineers, and crew—went straight to the railway depot and took his ticket; but just as he asked for it, the station-master entered and said to the clerk: 'The mail is in; she is signalled.'

The packet then was inside the Heads! She was not three hours behind them! It was now past five o'clock; all business was over for the day; the letters would be sent on at once; the Pelham branch of the great Gulf Bank would not take down its shutters in the morning; and he was a ruined man. Yet there was just one chance, one bare possibility, and slight as it was, he determined to try it. 'If they don't telegraph,' he thought, as the train slackened speed at the end of its brief run—'and I don't see why they should—I may yet get my money out of the fire. It is worth a trial, and win or lose I'll try it.' He of course knew that he was some hours ahead of even the earliest intelligence which could be sent from the mail-boat, and his scheme would succeed or fail in that time.

Without a moment's hesitation he went straight to the bank, which had long been closed for the day by the time he arrived; but his old acquaintance Mr Fred Rockman, the manager, lived on the premises, and was delighted to see him. 'I thought you had settled down in England,' he exclaimed; 'I had no idea you were in the colony.'

'I daresay not,' returned Burton, who was on thorns during the greeting and inquiries natural to such a meeting. 'I have come to see you as soon as I could'—which was strictly true—'and I want you to do me a favour. I want you to save me a great deal of time and trouble.'

'Indeed! And what is it, Burton?' was the very natural response.

'I want my money out to-night,' said Mr Burton bluntly.

'What! All?' exclaimed the manager.

'Yes; all,' returned the other.

'Oh! it's impossible; quite out of the question,' said the banker. 'Business is entirely over for the day, as you must very well know.'

'I do know it,' said Mr Burton. 'I know that all ordinary business is over; but I know very well that you have often paid depositors later than this, and that you can give it to me if you like. Admit, Fred—you can if you please.'

'Well,' said the manager hesitatingly, 'I can if I choose, I own; but we don't care about doing things out of the usual course.'

'I suppose it was in the usual course then,' retorted Burton, 'that your directors asked me, as a personal favour not to remove my money, when I had a good offer? You know, Fred, that it was voluntarily promised at that time that I should have my deposit on the instant whenever I chose to ask for it.'

'Yes; that's very true,' said the manager; 'I well remember the understanding; and if it's of importance to you—'

'It is of the utmost importance, I assure you,' interrupted Burton, 'I don't want to bore you with particulars; but I wish to change my investment; and if I don't get the money—in gold if possible—to-night, the chance will be lost. Will you or will you not do it? That is all.'

'I suppose I must let you have it, as your money is only on deposit,' said the manager slowly; 'but it is really very unusual. However, say no more; you shall have it. We will drink a bottle of wine in honour of old times, and then—'

'Excuse my abruptness,' said Burton, who was half-way towards a brain-fever with nervous excitement, and who was every moment hearing galloping horses and hurried steps where all was silence. 'Let me have the money first, and I will stand as many bottles of wine as you choose to drink while I am in the colony. But I must be back at my hotel in half an hour from this time, or it is all of no use.'

'Your people are confoundedly sharp dealers then,' grumbled the manager, as he rose deliberately from his chair. 'They ought to know you are a solvent party, and that your word is as good for the money—ay, as our own.'

'Well, never mind that, Fred,' said Burton. 'Let me have the money, and I can get my business done in an hour; and then—'

'Ah! it's of no use making an appointment later on in the evening,' interrupted the manager; 'I have an engagement for to-night, so we can't have a chat after your business is completed. We will leave it till to-morrow.' With this he quitted the room; summoned the watchman, who was already on duty; and after an interval, which might really have been ten minutes, but which seemed to the merchant as though it would never end, the slow step of Mr Rockman, who was

corpulent and heavy in build, was heard returning. He bore a small leathern case, whose distended sides shewed it was crammed with something; and a guess at its contents made Mr Burton's heart leap.

Little divining the condition of his visitor, the manager quietly sat down, drew towards him a sloping desk, on which were writing materials; and after adjusting his spectacles with more care and accuracy than, it appeared to Burton, any man's spectacles could possibly require, proceeded to write out a receipt for the money. Burton execrated the slow and formal style in which his friend had been taught to write, as he watched the carefully finished up-and-down stroke of every letter. The manager had got about half-way in his task when, struck by a sudden thought, he smiled, laid down his pen, and then shaking his head, as a man does when he half-regretfully recalls the memory of some past enjoyment, said: 'Lord bless me! you were running in my mind nearly all day on Saturday last. What do you think? Why, I met poor old Davy Lobbins—'

'Oh! confound— Did you though?' exclaimed Burton. 'Well, let us get this business out of hand, and we will have a talk about the old fellow.'

'Poor old chap!' mused Mr Rockman; 'he seems very much broken. Quite a different man from what—'

'Now really, Rockman!' exclaimed Burton, 'you forget how precious my time is. Do go on; there's a good fellow.'

Thus adjured, the manager resumed his writing as slowly as before, but it was done at last. 'Sign that, my boy,' said he, pushing the document towards his visitor. 'You will find that correct, I think.'

Burton signed it instantly without reading a line, and tossed it back.

'You always were a cool hand,' said the manager half-reprovingly and half-admiringly; 'but I think I should look at what I signed, when it concerned a respectable number of thousands.'

Burton smiled feebly; the situation was too painfully interesting for him to do more. The manager carefully placed the receipt in a drawer of the table, opened the case, and taking out a huge bundle of notes, commenced to count them. 'You don't mind Jacob's and Levy's draft on Rothschild for three thousand, do you?' he said. 'If you won't take that, I can't do it until—'

'Oh, never mind!' interrupted Burton; 'anything will do. Cut away; there's a good fellow.'

'Our gold and our own notes are locked up in the inner safe; but here is Colonial Bank paper, which may perhaps serve as well, unless—'

'Quite satisfactory,' interrupted the relieved merchant, as he eyed the welcome notes; 'quite good enough, Fred. Pray proceed!'

Mr Rockman stared impressively at him for a few seconds through his gold spectacles, as though such haste over so solemn a matter were unseemly, if not worse; however, he went on without remark. 'Five—five—two threes—one—two—three—four'—when at that instant a hack—Anglicè, a cab—dashed up to the door, and a thundering double-knock followed.

'Hollo! What's up now?' exclaimed the manager, pausing in his counting.

'Go on! go on! Never mind the door,' cried

Burton, half-rising from his seat. 'Why don't you go on?'

'Don't be ridiculous, Burton,' said the manager. 'Any one would think you had been drinking.—Come in.' These last words were in answer to a tap at the door; and the watchman presented himself. 'Well, what is it?' said the manager, turning to him, quite unconscious that his visitor had gathered himself up for a dash at the notes the moment the man spoke. 'Who was there?'

'It was a mistake, sir,' replied the watchman. The hack-driver was a stranger, and drove here instead of to the Royal Colonial.'

'All right,' said the manager. 'You may go, Dennis.—Now then, Mr Burton, we will proceed. Let me see, where was I? Five—five—two threes—*one—one*, &c.; and so on he went until his bundle of notes was exhausted. The draft on Rothschild was duly indorsed; the whole were restored to the case, and the case was handed to Mr Burton, after he had given up his deposit note.

'Of course,' added the manager, 'there's the balance of interest due to you, which to-morrow we shall make out when you call, and'—

'That's all right,' said Burton; 'but now I must be going.'

'You won't stop then? You are quite sure?' said the manager, as his customer rose. 'Well, good-night. Take care of the wallet. As your hotel is so short a distance from here, you may be safe; but if you had to leave the lamps for an instant, I should say: "Take a hack." Good-night.'

They shook hands and parted. Burton's first act was to inclose his precious case in a small locked satchel, which he then handed to the landlord, and saw it securely deposited in the great iron safe which all such places keep; then he drank off at a single gulp such a draught of brandy-and-water as excited the audible admiration of two or three men who were lounging at the saloon bar. Had it not been for this potent draught, he must have fainted; and as it was, he was fain to lie down, being thoroughly worn out and exhausted by the events of the day. In spite of his excitement, he slept soundly, so soundly and so long that the clanging of the breakfast-bell roused him from sleep, and hastily dressing himself, he went down to the saloon. At the very first glance he could see that something of interest was under discussion, for instead of sitting apart at separate tables, the guests were all gathered in earnest groups, talking and gesticulating like so many Frenchmen. As he made his way to a vacant table, a gentleman who, like himself, had just entered the room, said: 'Pretty state of things this, sir. What do you think of the news?'

'I really have not heard of any news this morning,' returned Burton; 'indeed I have but just left my room, having overslept myself.'

'Why, my dear sir,' exclaimed the other, evidently gratified at finding some one to whom he could be the first to impart the tidings—'why, have you not heard? The great Gulf of Carpentaria and Northern Australia Bank—the best bank in the province, has gone! Gone, sir! The mail came in last night with peremptory orders to close; so our bank won't open this morning; and it is said the depositors won't get half-a-crown in the pound.—Why,' pursued his new friend with

a sudden change of tone, 'you are not a loser, I hope?'

'I! O dear, no. Certainly not. By no means,' incoherently replied Burton, who found great difficulty in collecting himself sufficiently to say anything.

'I was afraid you were hit,' said the other, 'you turned so pale. So, as I was telling you'—

Mr Burton had civility enough to pay an outward show of attention to what followed; but the first great announcement had effectually discounted the interest of the narrative.

Directly his breakfast was over, he set out for the Colonial Bank, where he exchanged his notes for a draft payable to himself on his London bankers. He then repaired to the shipping office, to learn when the next packet sailed for England, as he was now ready to return, ay, even at so short a notice as that on which he had started. He had not gone fifty yards from the bank before he came face to face with Mr Rockman. He felt, it must be owned, a little sheepish at this rencontre; but no such sentiment appeared to influence the manager.

'Hollo! old fellow!' he exclaimed, as heartily as he could, under the depressing circumstances. 'I'll be shot if you were not in luck last night. But I'm glad you got your money, as I well know you only left it in to oblige the directors, and perhaps myself as an old friend. If you had left it in one day longer, you could not have touched a penny.'

'You don't say so!' exclaimed Burton.

'But I do though,' returned his friend; 'and I think, old fellow, as you have been so lucky, I may justifiably say I will drink that bottle of wine to-night at your expense. I think, friend Caleb, you may stand that.'

'My dear fellow,' exclaimed Burton, immensely relieved to find how philosophically the manager was treating what had been almost life or death to him, 'if there is a good bottle of port in Pelham, you shall have it, or fifty such if you will drink them.'

'Come, that's handsome,' returned the manager good-temperedly. 'But what is your hurry now? Where are you running to?'

'I am off to the shipping office,' said Burton, 'to see when the next packet sails for England.'

'The next packet can make no difference to you,' said Mr Rockman; 'you won't finish your business in time for her; every one could have told you that the *Hercules* sails to-morrow.'

'To-morrow?' echoed Burton. 'Good! I will send round the port wine to-night, Fred; but at present you must excuse me.'

The tale need be no longer drawn out, as nothing of interest remains to be told. The *Hercules* did sail the next day, Mr Burton being a passenger; his friend the manager was intensely astonished to hear this at first; but having received a hint that Mr Burton had only arrived by the *Cerberus*, his astonishment was changed to a feeling of the deepest admiration; and harassed though he was, consequent on the change in the fortunes of the Bank, he saw his friend off, and over and over again expressed his admiration, which as just said, was of the deepest, at his tact and energy.

The voyage of the *Hercules* was a speedy and prosperous one, so that when Mr Burton reappeared in his accustomed haunts, after what

seemed to his acquaintances a very brief absence, few suspected that in the short interval he had travelled thirty thousand miles and saved a fortune. The shabby Captain never knew what Mr Burton had done ; but he had reason for saying, as he often did over his glass of grog at his favourite tavern, that 'Caleb Burton was one of the most liberal fellows he had ever met, and bore no grudge against a man for owing him a trifle.'

It only remains to add that the hero of this perfectly true tale is alive and well, and belongs to a race of shrewd-headed Scotchmen.

#### CALCULATING BY MACHINERY.

We have been asked whether a brief description, intelligible to readers not versed in the abstruseness of mathematics, nor much inclined to the dull details of mechanical construction, could be given in this *Journal* of a Calculating Machine adverted to at a meeting of the British Association ? Anything very attractive the subject cannot well be ; but perhaps a few words bearing on it may be interesting.

Dr Spottiswood is the present President of the British Association for the Advancement of Science, his twelve months' occupancy of that office extending from the autumn of 1878 to the autumn of 1879. In his opening address at Dublin he discoursed learnedly on the recent progress of science, especially those branches which touch mathematical and physical investigations. Accuracy in calculations he pointed to as one of the most important elements of scientific progress ; seeing that the truth of an asserted principle or general law must necessarily be greatly dependent on the correctness of the figures relating to quantities, numbers, measures, weights, ratios, proportions, and the like. Mr Babbage, the celebrated inventor of the two calculating machines which bear his name, used to say, when speaking of the difficulty of insuring accuracy in the long numerical calculations of theoretical astronomy, that the science which in itself is the most accurate and certain of all had, through its innate difficulties, become inaccurate and uncertain in some of its results. This feeling had much to do with the determination he formed to bring mechanism to the aid of calculation.

There was certainly something likely to whet the curiosity of his hearers in the remarks made on this subject by Dr Spottiswood. Going far beyond mere calculating machines is a contrivance introduced two or three years ago by Professor James Thomson, who occupies the chair of Civil Engineering and Mechanics at Glasgow University.

'Professor James Thomson,' said Dr Spottiswood, 'has constructed an apparatus which by means of the mere friction of a disk, a cylinder, and a ball, is capable of effecting a variety of the complicated calculations which occur in the highest applications of mathematics to physical problems. By its aid it seems that an unskilled labourer may, in a given time, perform the work of ten skilled mathematicians. The machine is applicable alike to the calculation

of tidal, of magnetic, of meteorological, and perhaps also of all other periodic phenomena. It will solve differential equations of the second and perhaps even of higher orders. And through the same invention, the problem of finding the free motions of any number of mutually attracting particles, unrestricted by any of the approximate suppositions required in the treatment of the lunar and planetary theories, is reduced to the simple process of *turning a handle*.' All this makes one think that the turning of a handle is a work more worthy of respect than the world is generally in the habit of supposing ; the brain-work consists in determining and arranging what shall follow this merely mechanical process. Dr Spottiswood added : 'When Faraday had completed the experimental part of physical problem, and desired that it should thenceforth be treated mathematically, he used irreverently to say : "Hand it over to the calculators." But truth is even stranger than fiction ; and if he had lived until our day he might with perfect propriety have said : "Hand it over to the machine."

All calculating machines of earlier invention are much more complicated than 'a mere disk, ball, and cylinder.' The Roman *abacus*, the Chinese *shwanpan*, the graduated rods called *Napier's bones*, and the *sliding-rule*, are, it is true, not very intricate in construction ; but when calculating machines are spoken of, we understand something comprising a greater number of working parts, conjoined in action by various mechanical contrivances. Pascal constructed a machine for working out sums in the first four rules of arithmetic. It consisted of a series of cylinders working on a system through the medium of toothed wheels ; each cylinder had figures or numerals marked on it. One wheel had twelve teeth to calculate pence ; another had twenty to calculate shillings ; while the rest had ten teeth each for the purpose of adding up units to make tens, tens to make hundreds, hundreds to make thousands, and so on. The apparatus was 'set' to its work as a boy would set a sum on his slate, and by turning one cylinder, the other cylinders and the wheels were set in action, producing a result which made its appearance as a sum, a difference, a product, or a quotient, according as the setting might be for addition, subtraction, multiplication, or division.

More than half a century ago the late Mr Babbage described before the Royal Astronomical Society two machines, which he had designed (not constructed) for working mathematical problems, and printing the results with inked type. The English government, after an investigation of the matter by a fully competent scientific committee, consented to bear the cost of perfecting one or both machines for performing and printing mathematical tables useful in navigation and other branches of science. So badly was the affair managed however, that the scheme has never been brought to a successful issue ; the details were frequently being changed, the working drawings were exceedingly elaborate, new tools had to be invented, workmen had to be instructed, and Mr Babbage himself was a difficult man for the officials to deal with. First and last, the government advanced *seventeen thousand pounds* for this enterprise ; and the result is an unfinished machine, placed in the keeping of King's College,

London. If finished, this machine, called by Babbage a *Difference Engine*, would have performed a vast number of arithmetical and algebraical calculations, presenting the solutions of problems with unerring accuracy. Another, which he called an *Analytical Engine*, but which only exists on paper, would have grappled with problems of a higher mathematical grade. To describe either of these inventions in a popular periodical is out of the question ; the complexity of wheels, cylinders, axles, movable bolts, toothed gear, wedges, levers, pins, pivots, pointers, triggers, claws, cogs, spiral springs, ratchet wheels, &c., is such as to render the task hopeless.

Numerous other combinations of moving parts have been devised, less elaborate but more practicable than those of Babbage. Stäffel has invented an arithmetical machine, in which three cylinders are so arranged that they can work all the simpler rules of arithmetic, carrying multiplication up to millions by millions ; if the machine is required to solve an impossible sum, such as subtracting a larger number from a smaller, or dividing a smaller sum by a greater, it refuses, and rings a bell as an admonition ! Colmar invented an arithmometer in which the action is rather by plates sliding in grooves than by rotating cylinders ; like Stäffel's, it can perform addition, subtraction, multiplication, division, and evolution. Wertheimer, by means of a metal plate with indexes, notches, teeth, and holes, has contrived an apparatus for adding and subtracting sums of money. Baranowski's invention is for calculating wages, prices, interest, and other sums of money ; it is known as the Ready Reckoner, and is worked by means of a handle which reveals figures or numerals in openings in a brass plate. Schott, Lalanne, Roget, Maurel, Roth, Slovinski, and Scheutz have in like manner invented machines for solving arithmetical problems. Of these, Scheutz's excites great admiration among scientific men ; Mr Babbage highly extolled it, and deplored that it had found a purchaser in America instead of in England. It can compute mathematical tables, calculate to sixteen places of figures, and stamp on a plate of lead the result up to eight places, producing a matrix or mould from which a *cliché* cast in type-metal can be obtained, suitable for printing from ; it does its work at the rate of twenty-five figures or numerals per minute, calculated, recorded, and stamped in metal—an error either in the calculating or the printing being almost impossible.

Professor James Thomson's machine is specially remarkable for its simplicity. Dr Spottiswood, as we have seen, characterised it as comprising little more than a disk, a ball, and a cylinder. From the inventor's own description, given before the Royal Society in 1876, it appears that the disk rotates on an inclined or oblique axis, that the cylinder rotates on a horizontal axis, and that the ball simply rests at one point on the inclined disk, and at another against the curved side of the cylinder. The cylinder is wholly disconnected from the disk, by any wheel, lever, or other mechanism. When the disk is made to rotate by turning a winch-handle, it gives a peculiar motion to the ball, and this imparts rotary motion to the cylinder. Simple as is the action, all simplicity departs when we come to the Professor's account of the mode in which abstruse mathe-

matico-physical problems are solved by its aid : we here enter a region into which the *Journal* humbly confesses its unfitness to accompany the accomplished inventor of the apparatus. When Board schools have had twenty years' operation, perhaps the boys will duly understand the achievement of 'finding the free motions of any number of mutually attracting particles, unrestricted by any of the approximate suppositions required in the treatment of the lunar and planetary theories,' by merely turning a handle.

A few words on a somewhat allied subject—mental calculation as compared with *machine* calculation.

Mr George Bidder, C.E., whose death was recently reported, attracted great attention while a mere boy by his amazing quickness of mental calculation. Many scientific persons visited and tested him, and from a contemporary record we extract the following as a few examples of the questions he answered, and the time taken to answer them : 'How many times does a wheel 7 feet 3 inches in circumference revolve in a distance of 13 miles 3 furlongs ? Answer (in one minute), 9740 $\frac{1}{2}$  times.—What is the product of 62,473,864, multiplied by 27,356 ? Answer (in three and a half minutes), 1,709,035,584.—What is the cube root of 122,615,327,232 ? Answer (in two and a half minutes), 4968.—If the Bible contains 743 pages, each page 57 lines, and each line 17 words, how many words are there in the book ? Answer (in less than a minute), 719,967.—A statue stands between two trees ; the pedestal of the statue is 90 feet from the top of each tree, the one tree is 60, the other 54 feet high ; required the distance between the two trees ? Answer (in one minute), 139 feet.'

A number of other questions put to the boy, he answered with astonishing rapidity and accuracy, the process being entirely mental. The numbers were in no case reduced to writing, but merely spoken aloud to him, and by repeating them to himself he kept them in his memory. It was noticed that in getting the product of two or more numbers, he generally found the highest numbers first, shewing that he did not work by ordinary rules. The answer to the second question given above is obviously wrong ; but the error is probably in the newspaper report, as three figures are left out. This question, it may be noticed, can be done by an ordinarily quick arithmetician within the time taken by the famous 'calculating boy' ; but the difficulty of arranging five long rows of figures in the mind and then adding them together makes the feat a remarkable one.

#### TO MY SWEETHEART.

THAT one and one make really two—  
Most people will acknowledge true ;  
Yet even to this rule we find  
Exception dear to lover's mind ;  
Thus, you and I, and I and you,  
Are one and one, and still not two ;  
Least, so to me the figures run,  
For surely, darling, we are One !

J. F.

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